Note: Revised to add tree removals and protections in the area of the stormwater detention pond.

SUF

SOUND URBAN FORESTRY
Appraisals, Planning, Urban Landscape Design and Management

Kaiser Woods Bike Park Trail System Project
4300 Park Drive SW
Olympia, WA 98502

Level V Soil & Vegetation Report

Prepared for: City of Olympia, Diane Utter, Parks Project Engineer, Parks, Arts & Recreation

Prepared by: Kevin M. McFarland, SUF
Consulting Forester/ISA Certified Arborist

Date: 3/29/2023, *Amended 11/5/2023, 3/21/2025 & 3/28/2025, 4/4/2025*

Introduction

This Level V Soil & Vegetation report has been developed as part of the proposed parking area and trail improvement project at the City of Olympia's Kaiser Woods Park. This modified plan will fulfill the City's urban forestry requirements as outlined in Shelly Bentley's pre-submission conference worksheet dated 11/17/2020. Per Ms. Bentley's notes, this report will present:

- An inventory of the existing forest stand composition to include type, species, size and condition;
- A site plan indicating identified forest stand types;
- A summary of proposed tree removal;
- Tree protection measures for on and off-site trees and;
- Replanting and/or mitigation measures if large areas of trees require removal due to poor/hazardous conditions.

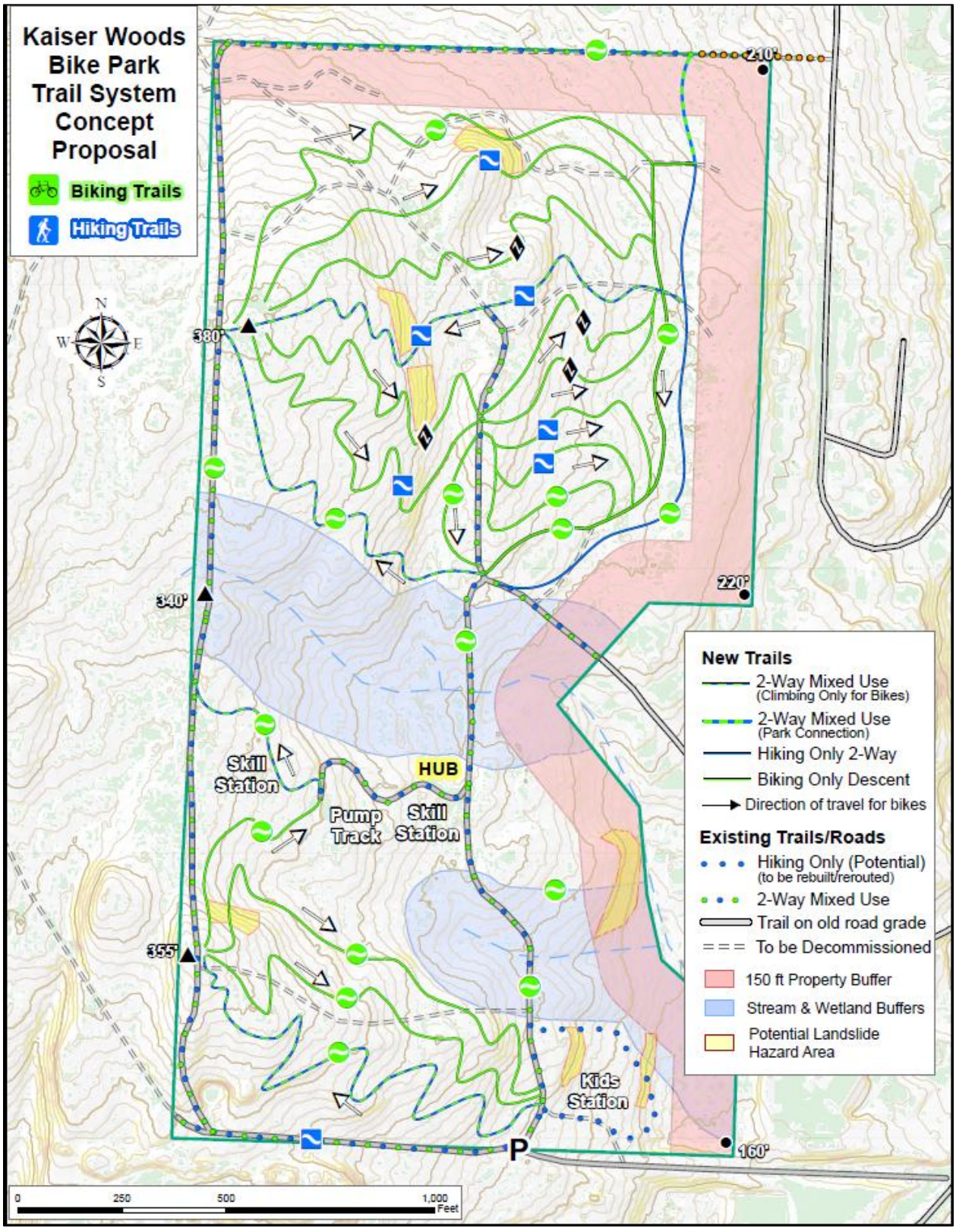
Site and Project Description

Including the unopened right-of-way, the 77-acre site is for the most part currently undeveloped. At one time two single-family residences and the associated buildings and site improvements existed near the Park Drive SW entrance but most have since been demolished by the City. Unimproved trails have become established throughout the property and parking is limited to a small unimproved area at the end of Park Drive. The majority of the site is forested with the exception of a maintenance building and areas that were previously cleared. A detailed description of the vegetation can be found later in this report. The western side is bordered by an overhead utility corridor while the northern and eastern sides abut developed residential lots. An old access lane is found along the southern property line, likely associated with access to the overhead utility lines and the Manke Timber property to the west.

According to the 1990 Soil Survey of Thurston County, Kapowsin silt loam is found within the site. This moderately deep, moderately well-drained soil is on till plains. Permeability is moderate above the hard pan and very slow through the pan. Available water capacity is moderate and effective rooting depth is about 20-30". Basalt rock outcroppings exist as well.

The proposed project involves the installation of an established parking area, restroom and beginner's station in the southern end, a storm pond in the southeast corner and multiple biking only, hiking only and shared use trails throughout the property. Several of the small existing trails are to be decommissioned.

Plan of Proposed Project



Forest Cover

The forest cover is comprised of native species typical of the Puget lowlands. Douglas fir is dominant based on acreage with western red cedar, western hemlock, big leaf maple, red alder, pacific madrone, black cottonwood and willow also found. Two distinct forest cover types have been determined. They are described as follows and the areas noted on the attached aerial. Sample plots measuring 20' x 20' were sampled in each type. Locations of the sample plots are also identified. With the exception of a small triangular area in the SW corner (within Forest Cover Type 1), the unopened ROW is void of forest cover and not included in these calculations.

Forest Cover Type I: Total area is approximately 54.76-acres, taking into account the cleared areas. Dominant Douglas fir with scattered big leaf maple and a few western red cedar. The cedars are regenerating with saplings found throughout. Understory vegetation includes salal, low mahonia, deciduous and evergreen huckleberry, sword fern, hazelnut, bracken fern, English ivy and English holly. Two pockets of Laminated Root Rot (LRR) were identified, as noted with a white triangle on the aerial. A total of ten sample plots were collected.

Table 1. Samples Plots within Forest Cover Type 1

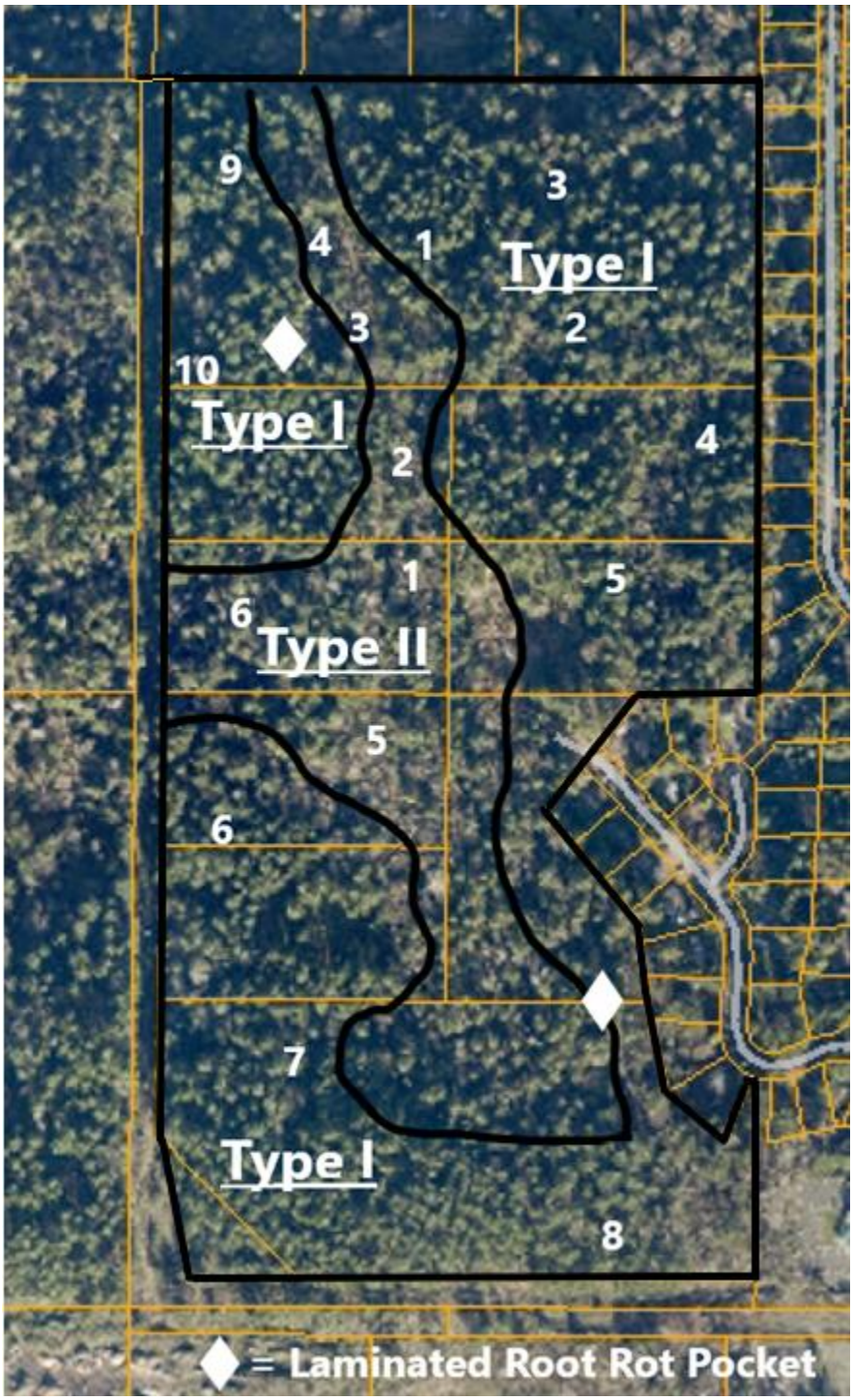
Plot #	Species	DBH	Condition
1	Douglas Fir	36"	Good
	Big Leaf Maple	10", 14"	Good
2	Douglas Fir	12"	Poor
	Douglas Fir	(2) 14", 24"	Good
3	Douglas Fir	8"	Fair
	Douglas Fir	28"	Good
	Big Leaf Maple	10"	Good
4	Douglas Fir	24"	Good
	Western Red Cedar	10", 16"	Good
5	Douglas Fir	34"	Good
	Big Leaf Maple	18"	Good
6	Douglas Fir	18", 26"	Good
	Bi Leaf Maple	24"	Good
7	Douglas Fir	20"	Good
	Big Leaf Maple	18"	Good
8	Douglas Fir	12"	Fair
	Douglas Fir	18", 20", 22"	Good
9	Douglas Fir	20", 28"	Good
	Big Leaf Maple	10"	Good
10	Douglas Fir	14"	Fair
	Douglas Fir	28", 32"	Good

Forest Cover Type II: Total area is approximately 13.43-acres. This forest cover is more indicative of soils with higher hydraulic properties and includes a mixture of red alder, big leaf maple and western red cedar. A few Douglas fir and western hemlock are also found. Understory vegetation includes salal, salmon berry, sword fern, hazelnut, oceanspray, willow, Nootka rose and English holly. A total of six sample plots were collected.

Table 2. Samples Plots within Forest Cover Type II

Plot #	Species	DBH	Condition
1	Red Alder	2”, 10”	Fair
	Red Alder	15”	Good
	Big Leaf Maple	18”	Fair
	Big Leaf Maple	28”	Good
	Western Red Cedar	34”	Good
2	Red Alder	10”, 12”	Fair
	Big Leaf Maple	15”, 26”	Good
3	Big Leaf Maple	12”, 18”	Fair
	Big Leaf Maple	15”	Good
4	Big Leaf Maple	32”	Fair
	Big Leaf Maple	20”	Good
	Douglas Fir	10”, 20”	Fair
5	Red Alder	14”, 16”	Fair
	Douglas Fir	12”	Fair
6	Red Alder	14”	Poor
	Red Alder	(2) 12”, 14”	Fair

Locations of Forest Cover Types and Sample Plots



Total Trees within Park Property

Based on the information presented above, the total trees within each forest cover type have been determined.

Table 3. Approximate Total Trees within Forest Cover Type I

Species	DBH	Number of Trees
Douglas Fir	8-12”	1,818
	12-18”	3,030
	18-24”	3,636
	24-30”	2,424
	30-36”	1,818
Big Leaf Maple	8-12”	1,818
	12-18”	1,818
	18-24”	606
Western Red Cedar	10”	606
	16”	606
		Total = 18,180

Table 4. Approximate Total Trees within Forest Cover Type II

Species	DBH	Number of Trees
Big Leaf Maple	8-12”	244
	12-18”	975
	18-24”	244
	24-30”	488
	30”+	244
Red Alder	8-12”	1,463
	12-18”	1,219
Douglas Fir	10-12”	488
	20”	244
Western Red Cedar	34”	244
		Total = 5,853

Tree Removal

While the proposed new trails themselves will not require any tree removal, there are several areas of improvements that will require selective removal either due to direct conflict or the poor conditions and associated risks of the trees. The locations are marked with orange and black arrows on Appendices 1 & 2 and are as follows:

- Skill Station 'A': Six Scouler's willows, measuring 6-12" DBH in poor to fair condition. These trees are in conflict with the improvements.
- Pump Track: One dead 19" Douglas fir.
- Parking Area: A total of six trees will require removal. They include: three 1-3" big leaf maple, one 8" Scouler's willow, two Douglas firs measuring 10" & 14" DBH.
- Kids Station: Six dead western red cedars measuring 12", 15", 17", 20", 20", 34" DBH.
- Storm Pond: A total of fifteen trees: 4 big leaf maples (4", 2x10" & 25"), 4 cottonwoods (13-16" & 38"), 3 multi-stem Scouler's willows (14-20") and 4 Douglas firs (5-16").
- Along Trail in SE Corner: There are two 18" DBH Douglas firs along the existing trail that runs north-south that are within the LRR pocket, infected and will require removal.
- Along New Trails in NW Corner: It has been determined that a total of 37 Douglas firs measuring 14"+ DBH and 16 red alders measuring 10"+ DBH will be removed due to being within the LRR pocket and infected or already dead.

Western red cedar trees that have been identified for removal should be cut as close to the ground as possible to facilitate bark collection from the fallen trunks. All other trees should be cut at a height of 10' or less, whichever can be done safely, to provide wildlife habitat.

I will also be conducting an assessment along the trails once they are staked and/or flagged to identify any risk trees within striking distance or the need for pruning. This may add to the number of trees to be removed.

Tree Protection Measures

Efforts have been made so that the placement of the trails and other amenities will have minimal impacts on the adjacent trees. Based on the spacing of the trees and the type of trails, I have determined that protection fencing will not be necessary for the trails. However, I am expecting that I will be conducting frequent visits to the site throughout the process to ensure any unforeseen encroachment does not occur.

Three areas of tree protection fencing are recommended. They are indicated with yellow on Appendices 3 & 4 and are as follows:

- Adjacent to the new parking area, around a 22" Douglas fir and 30" big leaf maple.
- Adjacent to the pump track, around a 10" big leaf maple and three western red cedars measuring 16", 18" and 20".
- Adjacent to the new storm pond, around one 12" cottonwood and a multi-stemmed big leaf maple.

In addition to the tree protection standards outlined in Chapter 7 of the City's Urban Forestry Manual, the following guidelines will be adhered to:

- Prior to any site work, I will meet with the contractor to review the expected sequence and placement of the fencing.
- The locations of the five art installations will be reviewed with the contractor and placed outside the driplines of any trees to be retained.
- Prior to the pre-con meeting, I will review the fencing installation and notify the City whether it is acceptable.
- All recommended fencing will remain in place throughout the entire construction process.
- If any roots measuring 3" or greater are uncovered, they will be cleanly cut with a handsaw. No roots will be pulled or torn with equipment.
- Any tree pruning that will be required for clearance will be discussed with me prior to any cutting. All pruning will adhere to ANSI 300 standards.
- I will be notified once the project is complete to assess the adjacent trees for any damage and notify the City of my findings.

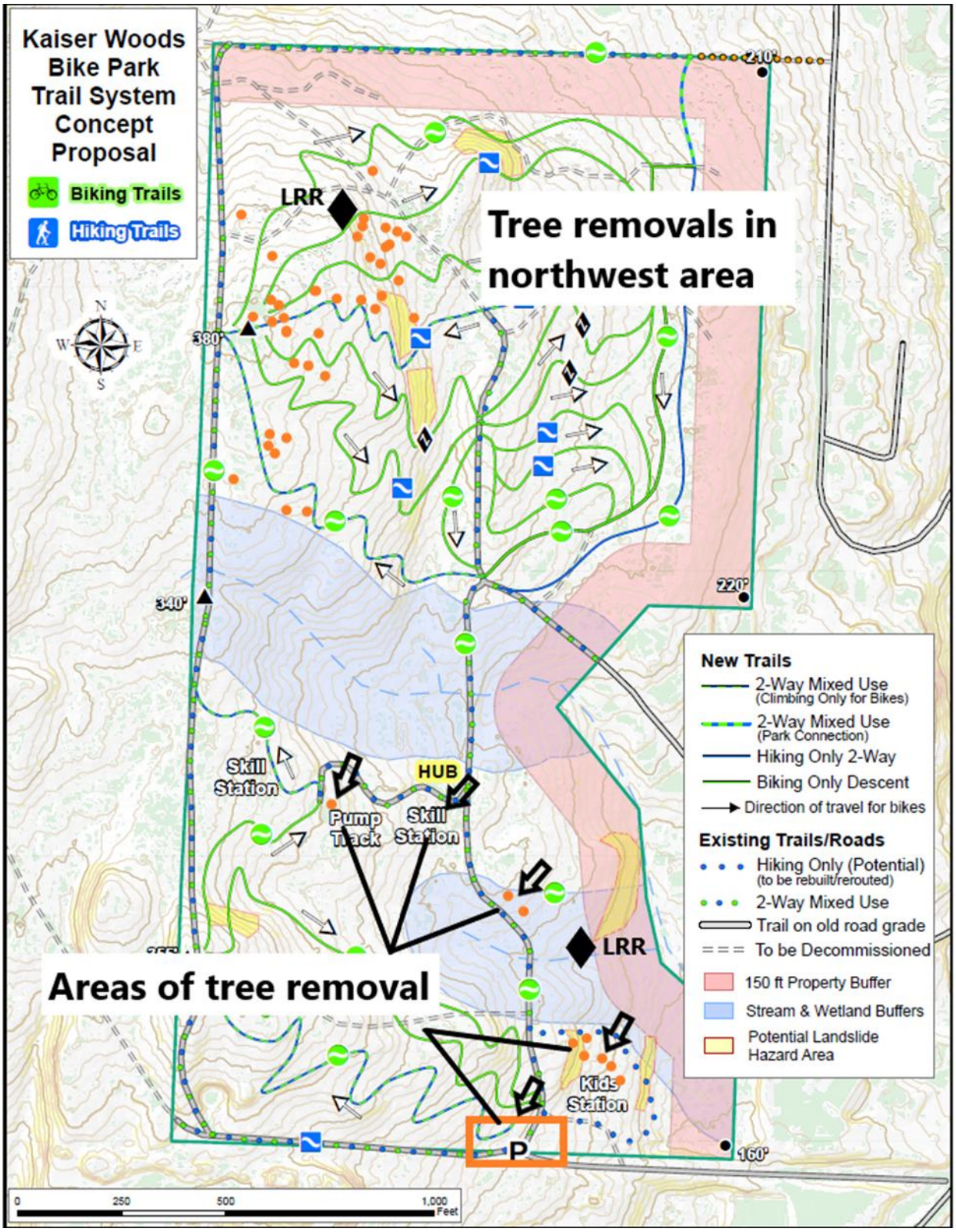
Replanting Efforts

If the mentioned 37 LRR infected Douglas firs are removed within the NW corner, I would recommend a replanting effort. Only species that are resistant to this disease should be used. I suggest big leaf maple, western red cedar, incense cedar, ponderosa and shore pines. Due the density of forest cover, I do not believe there is the need to replant for any other proposed tree removals.

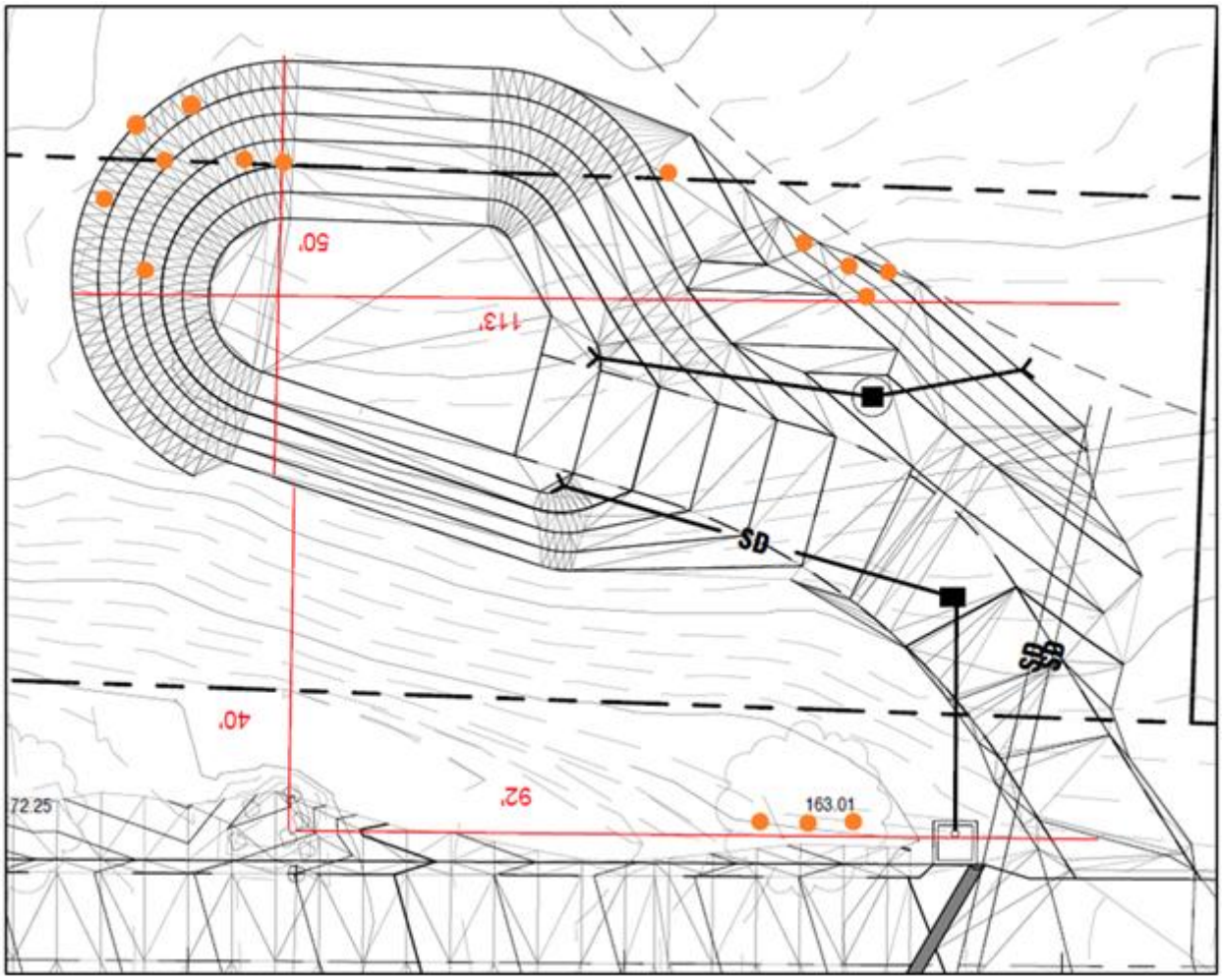
Professionally Submitted,

Kevin M. McFarland, Member
Consulting Urban Forester
ISA Certified Arborist PN-0373 & ISA Tree Risk Assessment Qualified
Sound Urban Forestry, LLC
P.O. Box 489
Tahuya, WA 98588

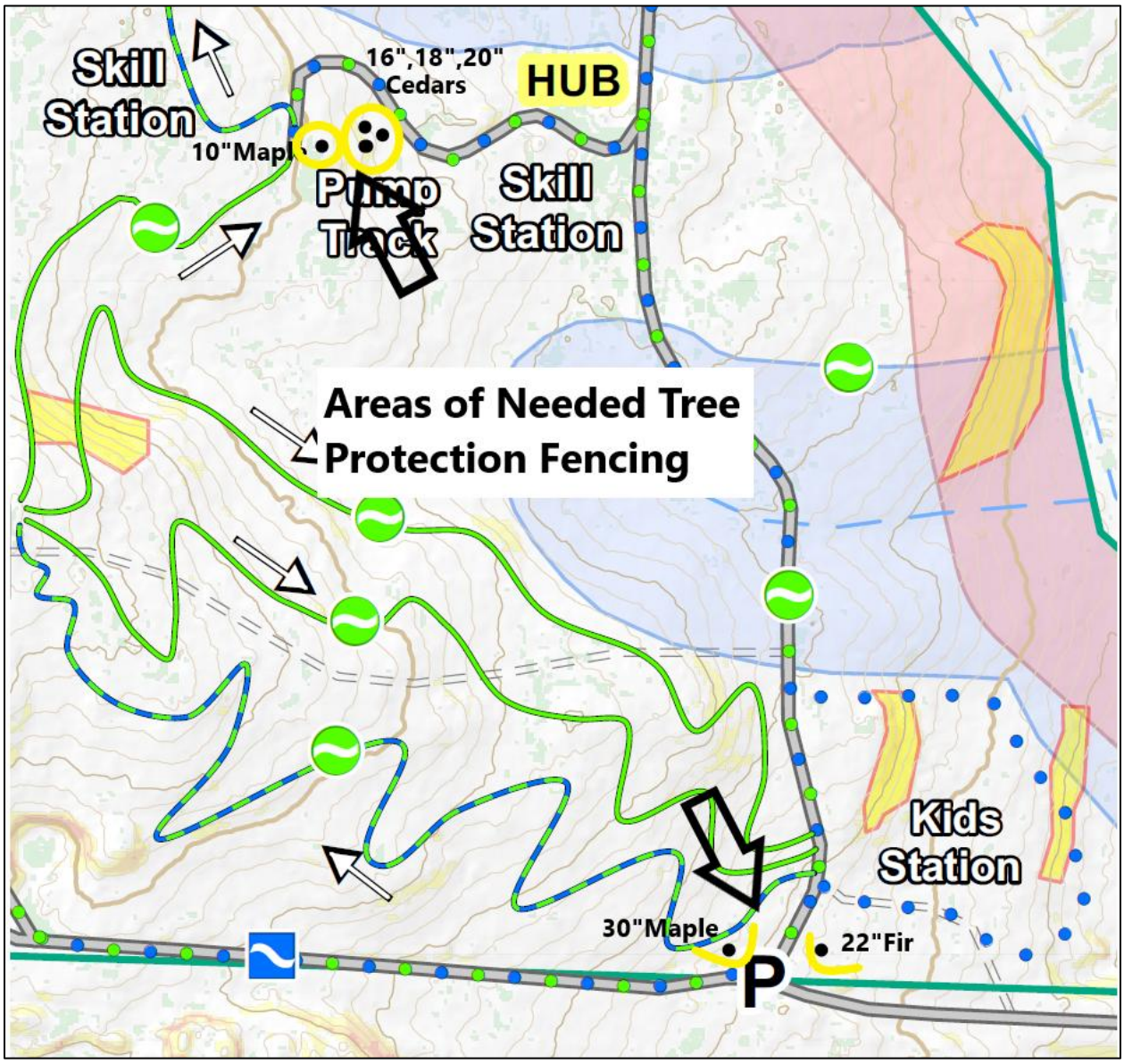
Appendix 1. Locations of Tree Removals


Kaiser Woods Bike Park Trail System Concept Proposal
Biking Trails
Hiking Trails
Tree removals in northwest area
Areas of tree removal
LRR
LRR
HUB
Skill Station
Pump Track
Skill Station
Kids Station
P
210'
220'
340'
380'
160'
New Trails
2-Way Mixed Use (Climbing Only for Bikes)
2-Way Mixed Use (Park Connection)
Hiking Only 2-Way
Biking Only Descent
Direction of travel for bikes
Existing Trails/Roads
Hiking Only (Potential) (to be rebuilt/rerouted)
2-Way Mixed Use
Trail on old road grade
To be Decommissioned
150 ft Property Buffer
Stream & Wetland Buffers
Potential Landslide Hazard Area
0
250
500
1,000 Feet

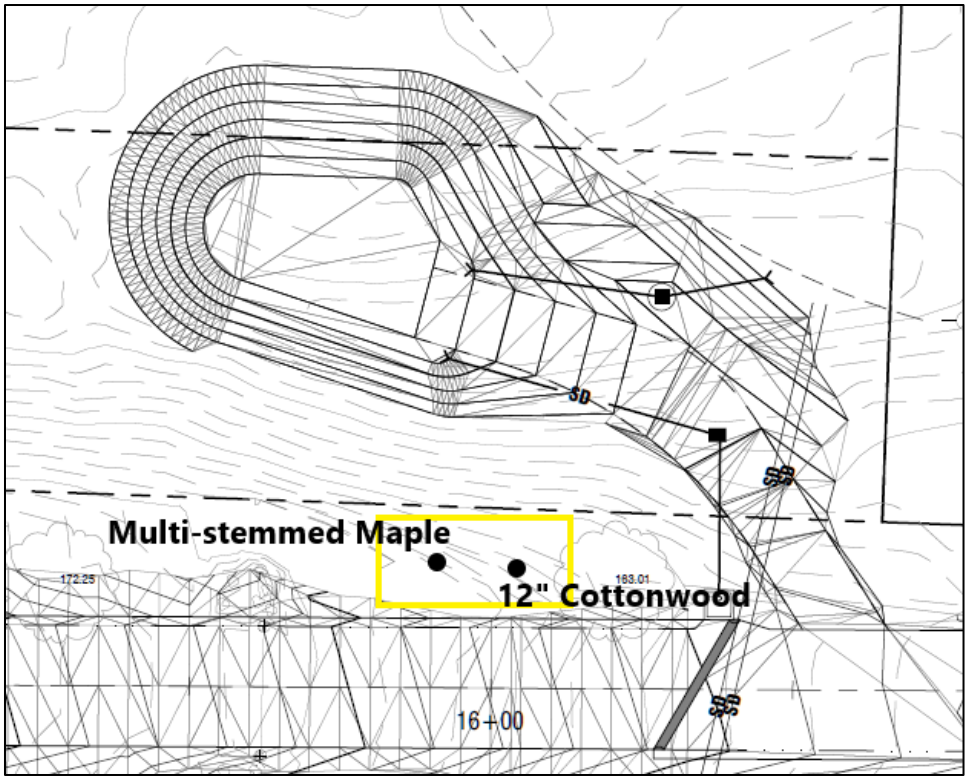
Appendix 2. Trees to be Removed Around Storm Pond



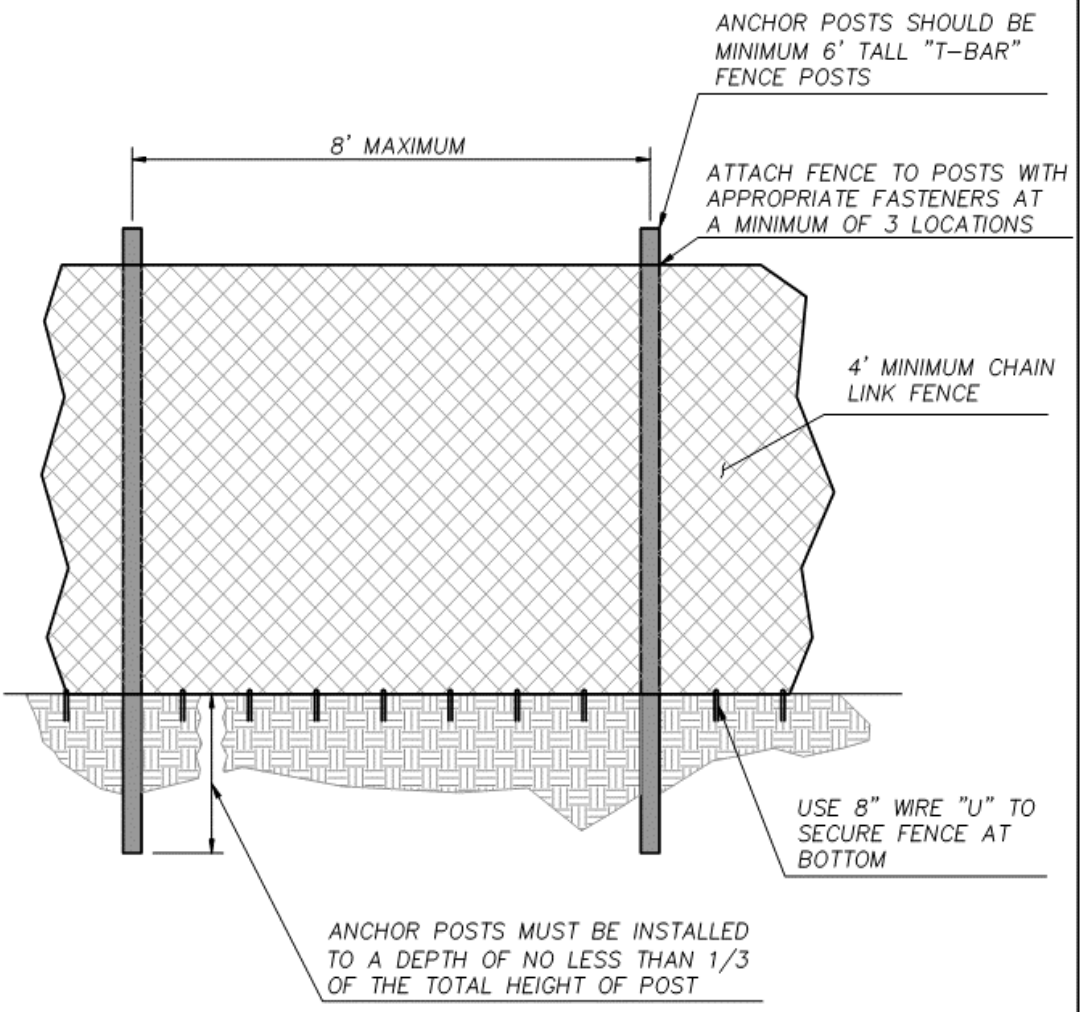
Appendix 3. Recommended Tree Protection Fencing



Appendix 4. Recommended Tree Protection Fencing Near Storm Pond


Multi-stemmed Maple
12" Cottonwood
172.25
183.01
16+00

Appendix 5. City of Olympia Tree Protection Fencing Standard



NOTES:
1. THE TREE, SOIL AND VEGETATION PROTECTION FENCE SHOULD BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND GRADING, AND NOT TO BE REMOVED UNTIL FINAL LANDSCAPING IS IN PROGRESS AND WITH APPROVAL BE PROJECT FORESTER.
2. AT NO TIME SHALL EQUIPMENT ENTER INTO THE CRITICAL ROOT ZONE (CRZ).
3. ALL BRUSH CLEANUP WITHIN THE CRZ SHOULD BE COMPLETED BY HAND TO PREVENT DISTURBANCE OF NATIVE GROUND COVERS.
4. NO CUTS OR FILLS, UTILITY TRENCHING, MODIFICATIONS TO DRAINAGE, OR CONCRETE RINSE WATER SHOULD IMPACT THE CRZ.
5. NO WIRES, CABLES, OR OTHER DEVICES SHOULD BE ATTACHED TO PROTECTED TREES DURING CONSTRUCTION.
6. IF IMPACTS MUST OCCUR WITHIN THE CRZ, CONTACT PROJECT FORESTER PRIOR TO THE OPERATIONS TO DETERMINE THE PROPER PROCEDURE TO PROTECT THE TREE'S HEALTH.

APPROVED BY	REVISED DATE	CITY OF OLYMPIA	STD. DWG. NO.
FRAN R. EIDE, PE CITY ENGINEER	12/08/2017	TREE PROTECTION FENCE	5-20